CLAIMS

What is claimed is:

1. A method for positioning a target mobile unit, the method comprising:

obtaining from a plurality of mobile units and a plurality of base stations, information regarding relative location of the target mobile unit; and,

positioning the location of the target mobile unit according to the information.

2. The method of claim 1 further comprising the step of sending a request from a particular mobile unit to the base station requesting information be collected from other mobile units when the particular mobile unit is unable to generate the information.

3. The method of claim 2 further comprising the step of instructing mobile units located nearby the mobile unit that transmitted the information request to provide the information.

4. The method of claim 3 wherein the instructed mobile units are limited to mobile units located within a particular geographic region.

5. The method of claim 1 wherein the information includes relative angle between the target mobile unit and the mobile unit providing information, propagation delay between the target mobile unit and a base station, propagation delay between a base station and the mobile unit providing information, amplitude of a signal received from the target mobile unit, amplitude of a signal received from a base station, direction of arrival of a signal from the target mobile unit, and direction of arrival of a signal from a base station.

6. The method of claim 5 further comprising the step of calculating the degree of confidence of the information received from the mobile units, thereby using the information selectively for positioning the target mobile unit.

7. The method of claim 6 wherein the plurality of mobile units calculate the degree of confidence.

8. The method of claim 6 wherein a base station calculates the degree of confidence.

9. A system for positioning a target mobile unit, the system comprising:

a data processing unit which receives information regarding relative location of the target mobile unit from a plurality of mobile units and a plurality of base stations and calculates location of the target mobile unit based on the information;

a plurality of mobile units providing the information regarding relative location of the target mobile unit and a base station; and,

a plurality of base stations serving the plurality of mobile units and providing information regarding the relative location of the target mobile unit and the plurality of mobile units.

10. The system of claim 9 wherein the plurality of mobile units transmits the information according to instruction from a base station.

11. The system of claim 9 further comprising a means for calculating a degree of confidence of the information.

12. The system of claim 9 wherein the information includes relative angle between the target mobile unit and the mobile unit providing information, propagation

delay between the target mobile unit and a base station, propagation delay between a base station and the mobile unit providing information, amplitude of a signal received from the target mobile unit, amplitude of a signal received from a base station, direction of arrival of a signal from the target mobile unit, and direction of arrival of a signal from a base station.

13. A mobile unit for providing positioning information related to a target mobile unit identified for positioning comprising:

an adaptive antenna array for computing a direction of arrival of incoming signals; and

a processor for measuring and reporting an angle between two incoming signals for which the mobile unit has measured directions of arrival.

14. The mobile unit of claim 13 wherein one of the incoming signals is from the identified mobile unit and one of the incoming signals is from a base station.

15. The mobile unit of claim 13 wherein the processor measures and reports an amplitude for the two incoming signals.

16. The mobile unit of claim 13 wherein the processor measures and reports a degree of confidence for the angle.